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REVISED COORDINATES OF 3 VARIABLE STARS IN CYGNUS

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**Abstract**

The identification of the variable stars published on IBVS #1302 has been checked on the basis of the original (unpublished) finding charts. For 3 stars significant differences were found and are reported here to allow an easier recovery by automatic cross-check procedures using digital catalogs. Some data from the recent Gaia DR2 catalog are also given.

A search for late type variable stars was made by P. Maffei (1977) using infrared plates (Kodak 103 I-N + RG5 filter) covering a 5 degrees wide field centered on  $\gamma$  Cyg. The aim was to discover Mira variables in a magnitude limited sample. In that paper, published in IBVS, only coordinates for the year 1950 were given for the stars, without finding charts: because the present practice of making cross-identification of astronomical sources is based only on coordinates coincidences between different catalogs, some stars may be misidentified simply due to misprints: this is most likely in the galactic plane, given the large density of stars. Having found the original finding charts in the library of the late prof. Maffei, I made a systematic check of all the 62 variables found by him in that field. The large majority of the stars have coordinates nearly coincident with those given in the 2MASS catalog (Cutri et al. 2003): only in 3 cases the differences are remarkable.

For these stars I report in Table 1 the Maffei's provisional name, the B1950 coordinates as reported in Maffei (1977), the J2000 coordinates of the actual 2MASS counterpart as derived from Maffei's original finding charts, the offset in arcsec from the present SIMBAD position, the present star designation in SIMBAD.

Table 1. Revised coordinates of variable stars in the field of  $\gamma$  Cyg.

Maffei name	RA1950 orig.	DEC1950 orig.	RAJ2000 2MASS	DECJ2000 2MASS	dist arcsec	GCVS name
M247	20:13:21.8	+41:08:25	20:15:07.07	+41:17:47.5	8.9	NSV25072
M251	20:19:29.7	+38:53:19	20:21:18.81	+39:03:05.4	10.9	NSV25113
M254	20:17:15.1	+38:45:10	20:19:03.95	+38:54:45.7	9.9	NSV13006

In Table 2, I report some relevant data (ID, parallax,  $G$  magnitude,  $G_{BP}$ ,  $G_{RP}$  color index, proper motion in RA and DEC) of these stars in the Gaia DR2 (Gaia Collaboration et al. 2018) catalog: for none of them is reported the variability status.

Table 2. Gaia DR2 most relevant data.

Maffei name	GaiaDR2 id.	$G$ mag	$G_{BP}, G_{RP}$ mag	paral. mas	RA p.m. mas/yr	DEC p.m. mas/yr
M247	2062620870978142592	13.81	0.98	$1.98 \pm 0.03$	$4.76 \pm 0.04$	$6.60 \pm 0.05$
M251	2061392957003016704	16.85	5.02	$-0.29 \pm 0.16$	$-2.94 \pm 0.27$	$-3.56 \pm 0.26$
M254	2061308294621233536	16.09	2.49	$0.16 \pm 0.05$	$-2.01 \pm 0.08$	$-3.19 \pm 0.07$

Below are some remarks on the individual stars.

M247: it is located between two much brighter stars. It is listed in the GSC2.3.2 catalog with magnitude  $N=13.94$  mag. Maffei reports an amplitude of 1.0 mag without variability type, suggesting it may be a Carbon star. The 2MASS colors ( $J-H=0.346$  mag,  $H-K=0.005$  mag) are quite blue.

M251: the GSC2.3.2 catalog reports  $N=16.00$  mag and no Red magnitude, but it is a bright source in 2MASS. Maffei reports an amplitude of 0.9 mag without a variability type. The 2MASS colors ( $J-H=1.645$  mag,  $H-K=0.848$  mag) are typical of the Mira and SR stars in the field. The Gaia DR2 parallax is of low quality and formally negative.

M254: the GSC2.3.2 catalog reports  $N=14.85$ . Maffei reports an amplitude of 0.9 mag, without a variability type. The 2MASS colors ( $J-H=0.853$  mag,  $H-K=0.261$  mag) are rather blue.

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References:

- Cutri, R.M., Skrutskie, M.F., vanDyk, S., et al., 2003, *CDS Vizier catalog*, II/246  
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